

WHAT IS CLAIMED IS:

1. An information-gathering device being configured to gather information relating to a pulse comprising:

a sensor module being configured to be mounted to a mounting area on a body; and

5 a supporter being configured to mount said sensor module, said sensor module comprising,

a motion detector being configured to detect motion components generated along with changes in the shape of said mounting area, and to output a motion detection signal, and

10 a pulse wave detector being configured to detect pulse wave components corresponding to a pulsating flow in said body, and to output a pulse wave detection signal.

2. The information-gathering device according to claim 1, wherein

15 said motion detector comprises a pressure sensor, a load sensor, or a displacement sensor.

3. The information-gathering device according to claim 1, wherein

said pulse wave detector comprises a pulse wave sensor, and

20 said motion detector has a detection position thereof disposed adjacent said pulse wave sensor.

4. The information-gathering device according to claim 2, wherein

said pulse wave detector comprises a pulse wave sensor, and

said motion detector has a detection position thereof disposed on a reverse side or same side of said mounting area in relation to said pulse wave sensor, said motion detector is positioned such that the same axis that passes through a detection position of said pulse wave sensor and said mounting portion passes through said motion detector

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5. The information-gathering device according to claim 1, wherein said sensor module comprises a transmitter being configured to transmit said motion detection signal and said pulse wave detection signal.

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6. The information-gathering device according to claim 5, wherein said sensor module further comprises a power generation device connected to said motion detector and said pulse wave detector configured to convert kinetic energy to electric energy and to supply electric energy to said information-gathering device.

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7. A pulse meter, comprising:

a motion detector being configured to detect motion components and changes in a shape of a mounting area of a body, and to output a motion detection signal;

a pulse wave detector being configured to detect pulse wave components corresponding to a pulsating flow in said body, and to output a pulse wave detection signal;

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a transmitter being configured to transmit said motion detection signal and said pulse wave detection signal;

a receiver being configured to receive said motion detection signal and said pulse wave detection signal from said transmitter; and

a pulse rate calculator being configured to calculate said pulse rate using said motion detection signal and said pulse wave detection signal received by said receiver.

8. The pulse meter according to claim 7, wherein

5 said pulse rate calculator comprises a removal processor being configured to subtract said motion detection signal from said pulse wave detection signal.

9. The pulse meter according to claim 7, wherein

said pulse rate calculator comprises,

10 a first frequency analyzer being configured to perform frequency analysis on said motion detection signal and to generate first frequency analysis data,

a second frequency analyzer being configured to perform frequency analysis on said pulse wave detection signal and to generate second frequency analysis data and

15 a removal processor being configured to perform subtraction processing on said first frequency analysis data corresponding to said second frequency analysis data.

10. The pulse meter according to claim 7, wherein

20 said pulse rate calculator comprises,

a filter coefficient generator being configured to generate an adaptive filter coefficient using said pulse wave detection signal and said motion detection signal, and

a removal processor being configured to subtract from said pulse wave detection signal said motion component detection signal to which said adaptive filter coefficient has been applied.

5            11.     An information-gathering device being configured to gather information relating to a pulse comprising:

a sensor module being configured to be mounted to a mounting area on a body; and  
a supporter being configured to mount said sensor module, said sensor module comprising,

10                a first motion detector being configured to detect motion components generated along with changes in the shape of said mounting area, and to output a first motion detection signal,

a second motion detector being configured to detect motion components generated along with body movement, and to output a second motion detection  
15                signal, and

a pulse wave detector being configured to detect pulse wave components corresponding to a pulsating flow in said body, and to output a pulse wave detection signal.

20            12.     The information-gathering device according to claim 11, wherein said sensor module comprises a removal processor being configured to remove motion components using said second motion detection signal when said second motion detector detects said motion components, and to remove motion components using said first motion

detection signal when said second motion detector does not detect said motion components.

13. The information-gathering device according to claim 11, wherein  
5 said first motion detector comprises a pressure sensor, a load sensor, or a displacement sensor.

14. The information-gathering device according to claim 11, wherein  
said second motion detector comprises an acceleration sensor.

10 15. The information-gathering device according to claim 11, wherein  
said pulse wave detector comprises a pulse wave sensor, and  
said first and second motion detectors have detection positions thereof disposed  
adjacent said pulse wave sensor.

15 16. The information-gathering device according to claim 11, wherein  
said pulse wave detector comprises a pulse wave sensor, and  
said first and second motion detectors have the detection positions thereof disposed  
on the reverse side or the same side of said mounting area in relation to said pulse wave  
20 sensor, said first and second motion detectors are positioned such that the same axis that  
passes through a detection position of said pulse wave sensor passes through said first and  
second motion detectors.

17. The information-gathering device according to claim 11, wherein said sensor module comprises a transmitter being configured to transmit said motion detection signal and said pulse wave detection signal.

5 18. The information-gathering device according to claim 17, further comprising a power generation device connected to said first and second motion detectors and said pulse wave detector to supply electric energy.

10 19. The information-gathering device according to claim 17, further comprising, a portable device having a receiver, and a pulse rate calculator, said receiver being configured to receive said first and second motion detection signals and said pulse wave detection signal from said transmitter and said pulse rate calculator being configured to calculate said pulse rate using said first and second motion detection signals and said pulse wave detection signal received by  
15 said receiver.

20. The information-gathering device according to claim 19, wherein said pulse rate calculator comprises,  
a filter coefficient generator being configured to generate an adaptive filter  
20 coefficient using said pulse wave detection signal and at least one of said first motion detection signal and said second motion detection signal, and  
a removal processor being configured to subtract from the pulse wave detection signal at least one of said first motion detection signal to which said

adaptive filter coefficient has been applied and said second motion detection signal to which said adaptive filter coefficient has been applied.

21. A method for gathering information relating to the pulse comprising:

5 mounting on a body an information-gathering device on a mounting area;

detecting motion components of said mounting area;

detecting changes in shape of said mounting area;

outputting a motion detection signal;

detecting pulse wave components corresponding to a pulsating flow in said body;

10 outputting a pulse wave detection signal; and

calculating a pulse rate using said motion detection signal and said pulse wave detection signal.

22. A control program for gathering information relating to the pulse from a

15 mounting area on the body, comprising:

code for detecting motion components of the mounting area;

code for detecting changes in shape of the mounting area;

code for receiving a motion detection signal;

code for detecting pulse wave components corresponding to a pulsating flow in the

20 body;

code for receiving a pulse wave detection signal; and

code for calculating the pulse rate using the motion detection signal and the pulse wave detection signal.

23. A computer-readable storage medium comprising:  
a control program being stored in said storage medium and designed to gather information relating to a pulse from a mounting area on a body said control program including commands for,

5 code for detecting motion components generated during movement of said mounting area,

code for detecting motion components generated during changes in the shape of said mounting area,

code for receiving a motion detection signal,

10 code for detecting pulse wave components corresponding to a pulsating flow in the body,

code for receiving a pulse wave detection signal, and

code for calculating the pulse rate using said motion detection signal and the pulse wave detection signal.